

## SEQUENCE LISTING

<110> Ema, Hideo  
Nakauchi, Hiromitsu  
Osawa, Mitsujiro

<120> PROTEIN SUSTAINING UNDIFFERENTIATED STEM CELLS

<130> 790086.405USPC

<140> US 10/507,343  
<141> 2002-03-11

<150> PCT/JP02/02265  
<151> 2002-03-11

<160> 27

<170> PatentIn Ver. 2.1

<210> 1  
<211> 1140  
<212> DNA  
<213> Mus musculus

<400> 1

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<400> 2

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Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu			
35	40	45	
Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala			
50	55	60	
Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile			
65	70	75	80
Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln			
85	90	95	
Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly			
100	105	110	
Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro			
115	120	125	
His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln			
130	135	140	
Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu			
145	150	155	160
Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr			
165	170	175	
Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys			
180	185	190	
Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His			
195	200	205	
Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys			
210	215	220	
Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn			
225	230	235	240
Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys			
245	250	255	
Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln			
260	265	270	
Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys			
275	280	285	
Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu			

290

295

300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys  
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His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His  
 325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala  
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Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp  
 355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp  
 370 375

&lt;210&gt; 3

&lt;211&gt; 1140

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3

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&lt;210&gt; 4

&lt;211&gt; 379

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4

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Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu  
35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala  
50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile  
65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln  
85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly  
100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro  
115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln  
130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asp Val Ile Val Met Asn Ser Glu  
145 150 155 160

Gly Asn Thr Ile Leu Gln Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr  
165 170 175

Cys Leu Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys  
180 185 190

Asn Glu Arg Arg Ile Cys Glu Cys Pro Asp Gly Phe His Gly Pro His  
195 200 205

Cys Glu Lys Ala Leu Cys Thr Pro Arg Cys Met Asn Gly Gly Leu Cys  
210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn  
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Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys  
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Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln  
260 265 270

Cys Glu Ile Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys  
275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Ser Lys Gly Tyr Gln Gly Asp Leu  
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Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys  
 305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Gln Glu Gly Trp His Gly Arg His  
 325 330 335

Cys Asn Lys Arg Tyr Glu Ala Ser Leu Ile His Ala Leu Arg Pro Ala  
 340 345 350

Gly Ala Gln Leu Arg Gln His Thr Pro Ser Leu Lys Lys Ala Glu Glu  
 355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp  
 370 375

<210> 5

<211> 1098

<212> DNA

<213> Rattus norvegicus

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<211> 365

<212> PRT

<213> Rattus norvegicus

<400> 6

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Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu  
 35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala  
 50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile  
 65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ser Gly Gln  
 85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly  
 100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Arg Leu Gly Thr Val Pro  
 115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln  
 130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu  
 145 150 155 160

Gly Asn Pro Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr  
 165 170 175

Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys  
 180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His  
 195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys  
 210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn  
 225 230 235 240

Cys Asp Lys Ala Asn Cys Ser Ala Thr Cys Phe Asn Gly Gly Thr Cys  
 245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln  
 260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys  
 275 280 285

Ile Gly Lys Ser Lys Ser Val Cys Glu Pro Gly Cys Gly Ala His Gly  
 290 295 300

Thr Cys His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly  
 305 310 315 320

Arg His Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg  
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Pro Ala Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala  
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Glu Gly Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp  
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 <212> DNA  
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<400> 7

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 <211> 374  
 <212> PRT  
 <213> Xenopus sp.

<400> 8

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Met Trp Ile Asp Ala His Gln Ala Arg Val Leu Ile Gly Phe Glu Glu  
 35 40 45

Asp Ile Leu Ile Val Ala Glu Gly Lys Met Ala Pro Phe Thr His Asp

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Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile Pro Val Asn Ile His		
65	70	75
Ala Met Asn Phe Thr Trp Gln Ala Thr Gly Gln Ala Glu Tyr Phe Tyr		
85	90	95
Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly Ile Met Ala Asp Pro		
100	105	110
Thr Val Asn Met Pro Leu Leu Gly Thr Val Pro His Lys Ala Thr Val		
115	120	125
Ile Gln Val Gly Phe Pro Cys Leu Gly Asn Gln Asp Gly Val Ala Ala		
130	135	140
Phe Glu Val Asn Val Ile Val Met Asn Ser Glu Gly Asn Val Ile Leu		
145	150	155
Gln Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr Cys Gln Gln Ala Lys		
165	170	175
Cys Thr Gly Gly Cys Arg Asn Gly Gly Phe Cys Asn Asp Arg His Val		
180	185	190
Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His Cys Glu Lys Ala Leu		
195	200	205
Cys Met Pro Arg Cys Met Asn Gly Gly Leu Cys Val Thr Pro Gly Leu		
210	215	220
Cys Ile Cys Pro Pro Gly Tyr Tyr Gly Ile Asn Cys Asp Lys Val Asn		
225	230	235
Cys Thr Thr His Cys Leu Asn Gly Gly Thr Cys Phe Tyr Pro Gly Lys		
245	250	255
Cys Ile Cys Pro Ser Gly Tyr Glu Gly Glu Gln Cys Glu Thr Ser Lys		
260	265	270
Cys Gln Gln Pro Cys Arg Asn Gly Gly Lys Cys Ser Gly Lys Asn Lys		
275	280	285
Cys Lys Cys Ser Lys Gly Tyr Gln Gly Asp Leu Cys Ser Lys Pro Val		
290	295	300
Cys Glu Pro Ser Cys Gly Ala His Gly Thr Cys Ile Glu Pro Asn Lys		
305	310	315
Cys Gln Cys Lys Glu Gly Trp Asn Gly Arg Tyr Cys Asn Lys Lys Tyr		
325	330	335
Gly Ser Asn Leu Met Asn Ala Leu Arg Pro Thr Gly Ser Arg Asn Arg		

340

345

350

Gln His Thr Pro Ser Pro Lys Arg Thr Glu Asp Arg Gln Ala Leu Pro  
 355 360 365

Glu Ser Asn Tyr Ile Trp  
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<210> 9  
 <211> 1137  
 <212> DNA  
 <213> Danio rerio

&lt;400&gt; 9

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<210> 10  
 <211> 378  
 <212> PRT  
 <213> Danio rerio

&lt;400&gt; 10

Met Ala Phe Arg Thr Pro Ala Val Gln Leu His Leu Lys Ala Cys Val  
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Leu Leu Leu Gly Gly Leu Leu Glu Ala Ala Tyr Gln Glu Arg Gly  
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Thr Met Tyr Met Trp Ile Asp Ala Asn Gln Ala Arg Ile Leu Ile Gly  
 35 40 45

Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala Pro Phe  
 50 55 60

Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile Pro Val  
 65 70 75 80

Asn Ile His His Val Asn Phe Thr Trp Gln Ala Thr Asp Gln Ala Glu  
 85 90 95

Tyr Phe Tyr Glu Phe Gln Thr Leu Arg Ser Leu Asp Lys Asp Ile Met  
 100 105 110

Asp Asp Pro Thr Val Asn Val Pro Leu Leu Gly Ser Val Pro His Lys  
 115 120 125

Ala Ser Val Val Gln Val Gly Phe Pro Cys Arg Gly Asp Gln Asp Gly  
 130 135 140

Val Ala Ala Phe Glu Val Thr Ile Leu Val Met Asp Ala Gly Gly Asn  
 145 150 155 160

Ile Ile Leu Arg Thr Pro His Asn Ala Ile Phe Phe Lys Thr Cys Gln  
 165 170 175

Arg Ala Lys Cys Pro Gly Gly Cys Arg Asn Gly Gly Tyr Cys Asn Glu  
 180 185 190

Arg Gln Val Cys Glu Cys Gln Asp Gly Phe Tyr Gly Val His Cys Glu  
 195 200 205

Lys Ala Leu Cys Ser Pro Arg Cys Leu Asn Gly Gly Leu Cys Met Ser  
 210 215 220

Pro Gly Val Cys Ile Cys Pro Pro Gly Tyr Phe Gly Ser Ser Cys Glu  
 225 230 235 240

Arg Ala Asn Cys Ser Thr Thr Cys Leu Asn Gly Gly Thr Cys Phe His  
 245 250 255

Pro Gly Lys Cys Ile Cys Ala Val Ser Phe Glu Gly Val Arg Cys Glu  
 260 265 270

Leu Ser Lys Cys Arg Gln Pro Cys Arg Asn Gly Gly Lys Cys Thr Gly  
 275 280 285

Arg Asn Lys Cys Lys Cys Ser Lys Gly Tyr His Gly Asp Leu Cys Ser  
 290 295 300

Lys Ala Val Cys Glu Pro Ser Cys Gly Ala His Gly Thr Cys Val Glu  
 305 310 315 320

Pro Asn Arg Cys Gln Cys Arg Glu Gly Trp His Gly Arg His Cys Asn  
 325 330 335

Lys Arg Phe Arg Gly Gly Val Ser Asn Ser Gln Arg Val Ser Pro Ser  
 340 345 350

Lys His Lys Ser Pro Ser Val Ala Ala Ala Lys Glu Ala Pro Glu Thr  
 355 360 365

Ser Gln Pro Ser Glu Thr Asn Tyr Val Val  
 370 375

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 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

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<210> 12  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 12  
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<210> 13  
 <211> 4817  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:pCAGGS 6xHis construct

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cgtaactat cgtcttgagt ccaacccgtt aagacacgcac ttatcgccac tggcagcagc 3420  
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ttttaaatca atctaaagta tatatgagta aactttggctt gacaggtaacc aatgcttaat 3840  
caactggcga cctatctcag cgatctgtct attcgttca tccatagtt cctgactccc 3900  
cgtcgtgtag ataactacga tacgggaggg cttagccatct ggccccagtg ctgcaatgt 3960

accgcgagac ccacgctcac cggctccaga tttatcagca ataaaccagc cagccggaag 4020  
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 cccggaaagct agagtaagta gttcgccagt taatagttt cgcaacgttgc 4140  
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 ctcacccaag tcattcttag aatagtgtat gcggcgaccg agttgctt gccccggcgtc 4440  
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 cactcgtgca cccaaactgtat cttcagcattc ttttactttc accagcggtt ctgggtgagc 4620  
 aaaaacagga aggcaaaaatg cgcacaaaaaa gggataagg gcacacggaa aatgttgaat 4680  
 actcataactc ttcccttttcaatattattt aagcattttt cagggttatt gtctcatgag 4740  
 cgatatacata tttgaatgtt ttttagaaaaaa taaacaaaata ggggtccgc gcacatttcc 4800  
 ccgaaaatgtt ccacctg 4817

<210> 14  
 <211> 1140  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 14  
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 ctgctcctgc tgcgagcgga tgcaggcgag ccacctgagg agagcttgc cctgtggatc 120  
 gacgcccattc aggcttagt gctcatagga tttgaagaag accttctgtat tgtctcggag 180  
 gggaaaatgg ccccctttac acatgatttc agggaaagccc aacaaagaat gccaaggcatt 240  
 cctgtcaata tccactccat gaattttacc tggcaagctg cggggcagggc agaatacttc 300  
 tacgagttcc tgcgtctgcg ctccctggat aaaggcatca tggcagatcc aactgtcaat 360  
 gtcccttgc tggaaacagt gcctcacaag gcatcagttg ttcaagttgg tttccctgt 420  
 ctcggcaaac aagacggggt agcagcattt gaagtgaatg tgattgtcat gaattctgaa 480  
 gccaacacca tccttaggac ccctcagaat gccatcttct taaaacatg tcaacaagct 540  
 gagtgcccg gagggtgtcg aaatggaggc tttttaacg aaaggcggtt ctgcgagttgt 600  
 cccgatgggt tctacgggccc tcactgttagt aaagccctgt gcatcccccc atgtatgaac 660  
 ggtggctgtgtgtcactcc tggcttctgc atctgcccccc ctggattcttca cggtgtcaac 720  
 tgcgtacaaag caaactgtctt aaccacctgc ttatggag ggacctgtt ttacccggga 780  
 aaatgtatcc gcccctctgg actcgaggaa gagcagtgtt aactcagcaaa atgccccca 840  
 ccctgcccggaa atggaggtaa atgcattgtt aaaagcaagt gtaagtgcggc gaaagggttac 900  
 caaggagacc tgcgtctaa gcccgtctgc gagcctggct gtgggtccca cggacacgtc 960  
 cacgaaccca acaagtgcca gtgtcgagag ggctggcaccg gcagacactg caataagagg 1020  
 tatggagcca gcctcatgca tgccccggg ccagcaggcg ccgggtcttgc ggcacacacg 1080  
 ctttactttaaaaaggctgtt gatccacccat gatccaaatcatctggta 1140

<210> 15  
 <211> 379  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Artificial Sequence

<400> 15  
Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser  
1 5 10 15  
  
Ile Leu Pro Cys Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro  
20 25 30  
  
Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu  
35 40 45  
  
Ile Gly Phe Glu Glu Asp Leu Leu Ile Val Ser Glu Gly Lys Met Ala  
50 55 60  
  
Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile  
65 70 75 80  
  
Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln  
85 90 95  
  
Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly  
100 105 110  
  
Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro  
115 120 125  
  
His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln  
130 135 140  
  
Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu  
145 150 155 160  
  
Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr  
165 170 175  
  
Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys  
180 185 190  
  
Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His  
195 200 205  
  
Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys  
210 215 220  
  
Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn  
225 230 235 240  
  
Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys  
245 250 255  
  
Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln  
260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys  
 275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu  
 290 295 300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys  
 305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His  
 325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala  
 340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp  
 355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp  
 370 375

<210> 16

<211> 1140

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Artificial Sequence

<400> 16

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 ctgctcctgc tgcgagcgga tgcagggcag ccacctgagg agagcttgta cctgtggatc 120  
 gacgcccattc aggctagagt gctcatagga tttgaagaag acattctgtat tgtctcgag 180  
 gggaaaatgg ccccctttac acatgatttc agggaaagccc aacaaagaat gccagccatt 240  
 cctgtcaata tccactccat gaattttacc tggcaagctg cggggcagggc agaataacttc 300  
 tacgagttcc tgtctctgctt cccttattgtat aaaggcatca tggcagatcc aactgtcaat 360  
 gtccctttgc tgggaacagt gcctcacaag gcatcagttt ttcaagttgg tttccctgt 420  
 ctccggcaaac aagacgggtt agcagcattt gaagtgaatg tgattgtcat gaattctgaa 480  
 gccaacacca tccttaggac ccctcagaat gccatcttct taaaacatg tcaacaagct 540  
 gagtgtcccg gagggtgtcg aaatggaggc tttttaacg aaaggcggtt ctgcgagtgt 600  
 cccggatgggt tctacgggcc tcactgttagt aaagccctgt gcataccccc atgtatgaac 660  
 ggtggctgtgt gtgtcaactcc tggcttctgc atctgccccctt ctggattctt cgggtgtcaac 720  
 tttgacaaag caaactgctc aaccacctgc tttaatggag ggacctgtttttaaccggga 780  
 aaatgtattt gccctcctgg actcgaggaa gagcagtgtg aactcagcaa atgcacccaa 840  
 ccctggcggaa atggaggtaa atgcatttgtt aaaagcaagt gtaagtgcggc gaaagggttac 900  
 caaggagacc tggctctaa gcccgtctgc gagcctggctt gtgggtccca cggAACCTGC 960  
 cacgaaccca acaagtgcctt gtgtcgagag ggctggcactg gcagacactg caataagagg 1020  
 tatggagcca gcctcatgca tgccccggagg ccagcaggcg ccgggcttggaa ggcacacacg 1080  
 ccttcactta aaaaggcttga ggatagaagg gatccacactg aatccaattt catctgggtga 1140

<210> 17  
 <211> 379  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 17  
 Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser  
 1 5 10 15

Ile Leu Pro Cys Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro  
 20 25 30

Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu  
 35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala  
 50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile  
 65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln  
 85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Ile Asp Lys Gly  
 100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro  
 115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln  
 130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu  
 145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr  
 165 170 175

Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys  
 180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His  
 195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys  
 210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn  
 225 230 235 240

Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys  
 245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln  
 260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys  
 275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu  
 290 295 300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys  
 305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His  
 325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala  
 340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp  
 355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp  
 370 375

<210> 18

<211> 1140

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Artificial Sequence

<400> 18

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 ctgctcctgc tgcgagcgga tgcaggcgag ccacctgagg agagcttgc cctgtggatc 120  
 gacgccccatc aggctagagt gctcatagga tttgaagaag acattctgat tgtctcgag 180  
 ggaaaaatgg cccccctttac acatgatttc aggaagcccc aacaaagaat gccagccatt 240  
 cctgtcaata tccactccat gaattttacc tggcaagctg cggggcagggc agaatacttc 300  
 tacgagttcc tgcctctgcg ctccctggat aaaggcatca tggcagatcc aactgtcaat 360  
 gtccctttgc tggaaacagt gcctcacaag gcatcagttg ttcaagttgg tttccgtgt 420  
 ctcggcaaac aagacgggggt agcagcattt gaagtgaatg tgattgtcat gaattctgaa 480  
 ggcacacca tccttaggac ccctcagaat gccatcttct ttaaaaacatg tcaacaagct 540  
 gagttgtcccg gagggtgtcg aaatggaggc tttttaacg aaaggcggtt ctgcgagtgt 600  
 ccggatgggt tctacggggcc tcactgttag aaagccctgt gcataccccg atgtatgaac 660  
 ggtggctgtgtgtcactcc tggcttctgc atctgccccctt ctggattcta cggtgtcaac 720  
 tttgacaaag taaactgctc aaccacctgc tttaatggag ggacctgtttt ttacccggaa 780  
 aaatgtattt gcccctcctgg actcgaggga gagcagtgtg aactcagcaa atgcccccaa 840  
 ccctgcccggaa atggaggtaa atgcattggt aaaagcaagt gtaagtgcc gaaaggttac 900

caaggagacc tgtgctctaa gcccgtctgc gagcctggct gtgggtgccca cggaacctgc 960  
 cacgaaccca acaagtgcctt gtgtcgagag ggctggcacg gcagacactg caataagagg 1020  
 tatggagcca gcctcatgca tgccccgagg ccagcaggcg ccgggcttggaa gcgacacacg 1080  
 ccttcactta aaaaggctga ggatagaagg gatccacactt aatccaattt catctggta 1140

<210> 19  
 <211> 379  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 19  
 Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser  
 1 5 10 15  
 Ile Leu Pro Cys Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro  
 20 25 30  
 Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu  
 35 40 45  
 Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala  
 50 55 60  
 Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile  
 65 70 75 80  
 Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln  
 85 90 95  
 Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly  
 100 105 110  
 Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro  
 115 120 125  
 His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln  
 130 135 140  
 Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu  
 145 150 155 160  
 Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr  
 165 170 175  
 Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys  
 180 185 190  
 Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His  
 195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys  
 210 215 220  
 Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn  
 225 230 235 240  
 Cys Asp Lys Val Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys  
 245 250 255  
 Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln  
 260 265 270  
 Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys  
 275 280 285  
 Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu  
 290 295 300  
 Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys  
 305 310 315 320  
 His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His  
 325 330 335  
 Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala  
 340 345 350  
 Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp  
 355 360 365  
 Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp  
 370 375

<210> 20

<211> 1140

<212> \_DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Artificial Sequence

<400> 20

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 ctgctcctgc tgcgagcgga tgcaggcgag ccacctgagg agagcttcta cctgtggatc 120  
 gacgccccatc aggcttagat gctcatagga tttgaagaag acattctgtat tgtctcgag 180  
 gggaaaatgg ccccctttac acatgatttc aggaaagccc aacaaagaat gccagccatt 240  
 cctgtcaata tccactccat gaattttacc tggcaagctg cggggcagggc agaatacttc 300  
 tacgagttcc tgtctctgcg ctccctggat aaaggcatca tggcagatcc aactgtcaat 360  
 gtccctttgc tggaaacagt gcctcacaag gcatcagtttgc ttcaagttgg tttccctgtgt 420  
 ctcggcaaaac aagacgggggt agcagcatt gaagtgaatg tgattgtcat gaattctgaa 480  
 ggcacaccca tccttaggac ccctcagaat gccatcttct ttaaaacatg tcaacaagct 540

gagtgtcccg gagggtgtcg aaatggaggc tttttaacg aaaggcggtt ctgcgagtgt 600  
 ccggatgggt tctacgggcc tcactgtgag aaagccctgt gcatacccg atgtatgaac 660  
 ggtggctgt gtgtcaactcc tggcttctgc atctgccccctt cggattcta cgggtcaac 720  
 tgtgacaaag caaactgctc aaccacctgc ttatggag ggacctgctt ttacccggaa 780  
 aaatgtattt gcccctctgg actcgaggaa gatcagtgtg aactcagcaa atgcccccaa 840  
 ccctgccgaa atggaggtaa atgcattgtt aaaagcaagt gtaagtgcgc gaaaggttac 900  
 caaggagacc tggctctaa gcccgtctgc gagcctggct gtggtgccca cggaacctgc 960  
 cacgaaccca acaagtgcgc gtgtcgagag ggctggcacg gcagacactg caataagagg 1020  
 tatggagcca gcctcatgca tgccccgagg ccagcaggcg ccgggctgga gcgacacacg 1080  
 ctttcactta aaaaggctga ggatagaagg gatccacctg aatccaatta catctggta 1140

<210> 21  
 <211> 379  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 21  
 Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser  
 1 5 10 15  
 Ile Leu Pro Cys Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro  
 20 25 30  
 Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu  
 35 40 45  
 Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala  
 50 55 60  
 Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile  
 65 70 75 80  
 Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln  
 85 90 95  
 Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly  
 100 105 110  
 Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro  
 115 120 125  
 His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln  
 130 135 140  
 Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu  
 145 150 155 160  
 Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr  
 165 170 175

Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys  
 180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His  
 195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys  
 210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn  
 225 230 235 240

Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys  
 245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Asp Gln  
 260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys  
 275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu  
 290 295 300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys  
 305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His  
 325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala  
 340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp  
 355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp  
 370 375

<210> 22

<211> 558

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Artificial Sequence

<400> 22

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 ctgctcctgc tgcgagcgga tgcaggcag ccacctgagg agagcttcta cctgtggatc 120  
 gacgccccatc aggctagagt gctcatagga tttgaagaag acattctgat tgtctcgag 180

ggaaaaatgg ccccccattac acatgatttc aggaaagccc aacaaagaat gccagccatt 240  
 cctgtcaata tccactccat gaattttacc tggcaagctg cggggcaggc agaatacttc 300  
 tacgagttcc tgtctctgcg ctccctggat aaaggcatca tggcagatcc aactgtcaat 360  
 gtcccttgc tgggaacagt gcctcacaag gcatcagttg ttcaagttgg tttccgtgt 420  
 ctcggcaaac aagacggggt agcagcatt gaagtgaatg tgattgtcat gaattctgaa 480  
 gccaacacca tccttaggac ccctcagaat gccatcttct taaaaacaca gctagcccat 540  
 catcatcatc atcattga 558

<210> 23  
 <211> 185  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 23  
 Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser  
 1 5 10 15

Ile Leu Pro Cys Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro  
 20 25 30

Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu  
 35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala  
 50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile  
 65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln  
 85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly  
 100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro  
 115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln  
 130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu  
 145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr  
 165 170 175

Gln Leu Ala His His His His His  
 180 185

<210> 24  
 <211> 717  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 24  
 atggctcgga gaagagcctt ccctgcttgc gcgctccggc tctggagcat cctaccttgc 60  
 ctgctcctgc tgctcgactg tcaacaagct gagtgtcccg gagggtgtcg aaatggaggc 120  
 ttttctaactg aaaggcggt ctgcgagtg ccggatgggt tctacgggccc tcactgtgag 180  
 aaagccctgt gcataccccc atgtatgaac ggtggtctgt gtgtcactcc tggcttctgc 240  
 atctgccccctt ctggattcta cggtgtcaac tgtgacaaag caaactgctc aaccacctgc 300  
 tttaatggag ggacctgctt ttacccggga aaatgtatcc gcccctctgg actcgaggga 360  
 gagcagtgtg aactcagcaa atgcccccaa ccctgcccga atggaggtaa atgcattgg 420  
 aaaagcaagt gtaagtgcgc gaaaggttac caaggagacc tgtgctctaa gcccgtctgc 480  
 gagcctggct gtggtgccca cggAACCTGC cacgaaccca acaagtgcgc gtgtcgagag 540  
 ggctggcactg gcagacactg caataagagg tatggagcca gcctcatgca tgccccgagg 600  
 ccagcaggcg cccggctgga ggcacacacg ctttactta aaaaggctga ggatagaagg 660  
 gatccacactg aatccaattt catctggcag ctggccatc atcatcatca tcattga 717

<210> 25  
 <211> 238  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Artificial Sequence

<400> 25  
 Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser  
 1 5 10 15

Ile Leu Pro Cys Leu Leu Leu Leu Asp Cys Gln Gln Ala Glu Cys  
 20 25 30

Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys Asn Glu Arg Arg Val Cys  
 35 40 45

Glu Cys Pro Asp Gly Phe Tyr Gly Pro His Cys Glu Lys Ala Leu Cys  
 50 55 60

Ile Pro Arg Cys Met Asn Gly Gly Leu Cys Val Thr Pro Gly Phe Cys  
 65 70 75 80

Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn Cys Asp Lys Ala Asn Cys  
 85 90 95

Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys Phe Tyr Pro Gly Lys Cys  
 100 105 110

Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln Cys Glu Leu Ser Lys Cys  
 115 120 125

Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys Ile Gly Lys Ser Lys Cys  
 130 135 140

Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu Cys Ser Lys Pro Val Cys  
 145 150 155 160

Glu Pro Gly Cys Gly Ala His Gly Thr Cys His Glu Pro Asn Lys Cys  
 165 170 175

Gln Cys Arg Glu Gly Trp His Gly Arg His Cys Asn Lys Arg Tyr Gly  
 180 185 190

Ala Ser Leu Met His Ala Pro Arg Pro Ala Gly Ala Gly Leu Glu Arg  
 195 200 205

His Thr Pro Ser Leu Lys Lys Ala Glu Asp Arg Arg Asp Pro Pro Glu  
 210 215 220

Ser Asn Tyr Ile Trp Gln Leu Ala His His His His His His  
 225 230 235

<210> 26  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> WIF-1 repeat

<221> VARIANT  
 <222> 2, 3, 4, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 18, 20, 21,  
 22, 23, 24, 25, 26, 27, 29, 30, 31, 32  
 <223> Xaa = Any Amino Acid

<400> 26  
 Cys Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa  
 1 5 10 15  
 Cys Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa  
 20 25 30

<210> 27  
 <211> 36  
 <212> PRT  
 <213> UNKNOWN

<220>

<223> Specific domain in the epidermal growth factor which comprises the EGF like repeat

<221> VARIANT

<2222> 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 17, 18, 19,  
20, 21, 22, 23, 24, 26, 28, 29, 30, 31, 32, 33, 34, 35

<223> Xaa = Any Amino Acid

<400> 27